<center>REMARKS</center>

Claims 1-66 are pending in the present application. In a May 21, 2007, Office Action (hereinafter "Office Action"), Claims 1, 3, 23, 25-27, 38, 40, 42-45, 47-48, 59, 60, 62, and 64-66 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Application Publication No. 2005/0080771, to Fish (hereinafter "Fish"), in view of U.S. Patent No. 6,360,227, to Aggarwal et al. (hereinafter "Aggarwal"), and in further view of U.S. Patent No. 6,326,962, to Szabo (hereinafter "Szabo"). Claims 2, 4-22, 28-37, 39, 41, 46, 49-58, 61, and 63 were rejected under 35 U.S.C. § 103(a) as being obvious over Fish in view of Aggarwal and Szabo and in further view of U.S. Patent Application Publication No. 2003/0172075, to Reisman (hereinafter "Reisman"). Applicants respectfully disagree. While applicants disagree with the grounds of rejection cited in the Office Action, in order to advance the prosecution of the present application, each of the independent claims in the present application has been amended to clarify the claim language and further distinguish the claimed invention from the cited references.

For the following reasons, applicants respectfully submit that the rejected claims of the present application are nonobvious over the cited references because the cited references, alone or in combination, fail to teach or suggest collecting data that represents the performance of a search result including implicit data that quantifies the user's interactions with the search results. Prior to discussing in more detail reasons for applicants' belief that all of the claims of the present invention are allowable, a brief description of the present invention and the cited references is presented. The following discussion of the disclosed embodiments of applicants' invention and the teachings of the references are not provided to define the scope or interpretation of any of applicants' claims. Instead, such differences are provided to help the

United States Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

Summary of the Present Invention

The present invention is generally directed to dynamically updating the configuration of a search engine based on an analysis of the relevance of the search results being produced. In this regard, aspects of the present invention continually collect performance data that quantifies how relevant users find the results produced by a search engine. As the performance data is collected, it is compared against the expected performance of the relevance of the results produced by the search engine. When a discord is identified between actual performance and expected performance, aspects of the present invention diagnose a possible cause of the underperforming results produced by the search engine. Based on this comparison, an automatic adjustment to the operation of the search engine may be implemented that optimizes the search result relevance by giving greater or lesser significance to various categories of performance data used by the search engine to produce search results.

Summary of U.S. Patent Application Publication No. 2005/0080771, to Fish

Fish is purportedly directed to an enhancement to a search engine that modifies search results based on information provided by an identified secondary source. In this regard, results obtained using a conventional search are augmented or refined based on data provided by a secondary source such as a rating service. The results produced by the conventional search system may be broadened or narrowed. Also, information provided by the secondary source may be used to re-order the results produced using the conventional search system.

Summary of U.S. Patent No. 6,326,962, to Szabo

Szabo is purportedly directed to formulating and refining a search of a database by modifying the relationship between search terms and set operators that link the search terms. In

one aspect of the Szabo system, a user may define a desired result parameter to refine a search strategy. Artificial intelligence may be applied to propose an analogous change to the search that corresponds to the input provided by the user. As a result, Szabo may provide a more relevant search result that adheres to a generalized criteria identified from the input received from the user.

Summary of U.S. Patent No. 6,360,227, to Aggarwal

Aggarwal is purportedly directed to generating graph taxonomies and making content-based recommendations based on those graph taxonomies. More specifically, related information is classified using a directed acyclic graph. In this regard, Web pages may be analyzed in order to classify links to Web pages in the appropriate categories of the graph taxonomies. When a search result is received, the Aggarwal system may recommend a group of documents in a subject area that is related to a search query input by the user. By preprocessing Web page data into graph taxonomies before search results are received, the Aggarwal system purportedly improves the speed in which search results may be provided.

Claim Objections

Claims 44 and 59 were objected to because of the informality of the use with the "herein." These claims have been amended to overcome this objection.

Claim Rejections Under 35 U.S.C. § 101

Claims 23-44 were rejected under 35 U.S.C. § 101 because the Office Action asserted that these claims were directed to nonstatutory subject matter. In this regard, the Office Action asserted that these claims lacked a useful, concrete, and tangible result because the system was directed at software *per se*. Applicants have amended Claim 23, from which Claims 24-44 depend, to recite a useful, concrete, and tangible result in which optimized search results are provided to a user.

Claim Rejections Under 35 U.S.C. § 112

Claims 1-22 and 45-66 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicants regard as the invention. The Office Action asserted that the use of the phrase "greater significance" renders Claims 1 and 45 indefinite because the scope of these claims was unascertainable. Accordingly, applicants have amended these claims to define exactly how the collected performance data will be given greater significance (e.g., when the data is normalized). Moreover, Claims 1 and 45 were rejected because of the use of the term "to performance data." Each of these claims has been amended to overcome this rejection.

Rejection of Claims 1, 3, 23, 25-27, 38, 40, 42-45, 47-48, 59, 60, 62, and 64-66 Under 35 U.S.C. § 103(a)

The Office Action rejected Claims 1, 3, 23, 25-27, 38, 40, 42-45, 47-49, 59, 60, 62, and 64-66 under 35 U.S.C. § 103(a) as being obvious over Fish in view of Aggarwal and in further view of Szabo. The Office Action asserts that a combination of the cited references suggests each and every element of these claims. Applicants respectfully disagree. As described in more detail below, the cited references fail to disclose or suggest elements of applicants' independent and dependent claims.

Claims 1 and 45

For the purpose of this discussion, independent Claims 1 and 45 will be discussed together because the elements that distinguish each of these claims from the cited references are similar.

Claim 1, as amended, recites the following:

1. A method for automating the optimization of search results displayed in a search Web page, the method comprising:

providing search results to users of a search engine;

collecting data that represents a performance of a search result, the data originating from at least one of a plurality of sources of performance data that includes implicit data collected by quantifying the user's interactions with the search results;

normalizing the collected data that describes the user's interactions with the search results in accordance with a relative importance of the source of the data;

comparing the normalized performance data to an expected performance data for the search result;

diagnosing at least one possible cause for an underperforming search result from the results of the comparison between the normalized performance data and the expected performance data; and

adjusting an operation of a search engine that produced the search result in accordance with the diagnosis to improve the search result performance, the adjustment operative to give greater significance to collected performance data from at least one of the sources when normalizing the data.

Similarly, Claim 45, as amended, recites the following:

45.   One or more computer-accessible media having instructions stored on the media for facilitating the automated optimization of a search result in a search result user interface, the instructions comprising:

providing search results to users of a search engine;

collecting data that represents a performance of a search result from at least one of a plurality of sources of performance data that includes implicit data collected by quantifying the user's interactions with the search results;;

normalizing the collected data that describes the user's interactions with the search results in accordance with a relative importance of the source of the data;

comparing the normalized performance data to an expected performance data for the search result;

diagnosing at least one possible cause for an underperforming search result based on the comparison between the normalized performance data and the expected performance data; and

adjusting an operation of a search engine that produced the search result in accordance with the diagnosis to improve the search result performance, the adjustment operative to give greater significance to collected

performance data from at least one of the sources when normalizing the data.

In order to clarify the subject matter that the applicants regard as the invention, certain claim amendments have been made that more clearly distinguish independent Claims 1 and 45 from the cited references. Applicants respectfully submit that neither Fish, Aggarwal, nor Szabo teaches the combination of providing search results to users of a search engine and "collecting data that represents a performance of the search results" that includes "implicit data collected by quantifying the user's interactions with the search results" as recited in Claims 1 and 45. In accordance with one embodiment of the present invention, when users of a search engine are provided with search results, performance data that describes the user's interaction with search results is collected. For example, the click through rate ("CTR") that describes how users select links in search results may be analyzed and quantified by aspects of the present invention. In instances when the results provided by the search engine are underperforming in that the most prominent search results have not been identified as the most relevant by users, a possible cause for the underperforming search results is identified, and the operation of the search engine may be adjusted. By performing these steps, aspects of the present invention allow a search engine to keep pace with the rapid changes in searchable content available from modern computer networks such as the Internet. For example, if the popularity of content available from a computer network changes rapidly, processes performed by aspects of the present invention and recited in Claims 1 and 45 adjust the operation of the search engine to insure that more relevant search results are provided.

The Office Action asserts that Fish teaches a method for automating the optimization of a search result that includes collecting data that represents a performance of a search result, diagnosing at least one possible cause for an underperforming search result, and adjusting the operation of a search engine. Office Action at page 13-14. Applicants agree that Fish is directed

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at providing an improved search engine. However, the way in which Fish and the subject matter reflected in Claims 1 and 45 of the present invention attempt to identify the most relevant search results is fundamentally different. More specifically, the claimed subject matter represented in Claims 1 and 45 employs a technique that includes "providing search results to users of a search engine" and "collecting data that represents a performance of the search results that includes implicit data collected by quantifying the user's interaction with the search results." Then, based on the data collected when search services are provided, the operation of the search engine may be adjusted.

In contrast to the claimed subject matter of the present invention, Fish is directed to filtering search results based on information obtained from secondary or external sources. In this regard, a problem identified in the Fish system is that conventional search queries are frequently too narrow or general in scope. As a result, a user may be required to perform multiple searches using more or fewer terms in order to identify relevant content. The Fish system attempts to address this problem by allowing secondary sources of information to be referenced when a search is performed. Fish at ¶ [0048]. In this regard, secondary sources, such as a ratings service, may be referenced when a user of the Fish system would normally receive too few search results. Fish at ¶ [0048]. As stated in Fish, "[r]esults from a conventional search engine 12 may therefore be refined 22a and/or reorganized 22b, based on data 18 independently maintained by a ratings service 16." Fish at ¶ [0048]. This aspect of the Fish system is clearly illustrated in Figure 1, which depicts a search engine 12 utilizing an external source 16 to "refine results of the search query based on data received from the external source 16." Fish at Figure 1.

The Fish system refines search results identified by a conventional search engine using information obtained from an identified secondary source. The Fish system actually teaches away from the present invention as it merely employs a secondary source to refine/expand results

generated by a conventional search engine. By contrast, aspects of the present invention do not utilize a secondary source to identify relevant search results. Instead, as reflected in Claims 1 and 45, aspects of the present invention collect data while providing search services in order to identify how well a search engine is performing in practice. Then an analysis of the actual performance of the search engine is performed so that a cause for underperforming search results may be diagnosed. Based on this analysis, operation of the search engine is adjusted by giving greater significance to performance data that is normalized when providing search results. Simply stated, the Fish system utilizes secondary sources to refine and/or adjust the search results provided to a user. In contrast, the present invention identifies how relevant users find the search results being provided and adjust the operation of a search engine accordingly.

The differences between Fish system and the present application are reflected in Claims 1 and 45. More specifically, Claims 1 and 45 include the claim elements of "collecting data that represents a performance of the search results" that includes "implicit data collected by quantifying the user's interactions with the search results." As described above, the Fish system does not collect data that represents the performance of the search result. Instead, the Fish system uses a secondary source to refine the search results provided by conventional search technology. In instances when the secondary source does not maintain network-accessible content in an up-to-date form, the Fish system is not able to keep pace with rapid changes in network-accessible content. For example, in an exemplary embodiment of the Fish system, rating information obtained from a secondary source is used to refine and/or organize the results of a general search. However, since the Fish system does not collect performance data that describes a user's interactions with search results, it would not be able to rapidly account for changes in content provided by the secondary source. If the rating information from the secondary is not up-to-date, then the Fish system would not be able to diagnose a problem with

search results that are underperforming. Instead, Fish would only allow users to identify a secondary source to refine a search regardless of whether data provided by the secondary source is identified as being relevant in practice.

As described above, Fish fails to teach or suggest "collecting data that represents a performance of the search results" that includes "implicit data collected by quantifying the user's interactions with the search results" and using this data to adjust the operation of a search engine. Since Fish and the other cited references fail to teach each element recited in Claims 1 and 45, applicants respectfully request a withdrawal of the 35 U.S.C. § 103 rejection of these claims.

Claims 3, 47-49, 59, 60, 62, and 64-66

Claims 3, 47-49, 59, 60, 62, and 64-66 depend from independent Claims 1 and 45, respectively. As discussed above, the cited and applied references fail to teach or suggest collecting data that represents a performance of the search results that includes implicit data collected by quantifying the user's interactions with the search results and using this data to adjust the operation of a search engine. Accordingly, for the above-described reasons, dependent Claims 3, 47-49, 59, 60, 62, and 64-66 are also allowable over the cited and applied references. Additionally, these claims are nonobvious for additional reasons, some of which are discussed in further detail below.

Claims 3 and 47 include the additional elements of "wherein normalizing the collected data in accordance with a relative importance of the source of the data includes giving greater weight to the data that describes a user's interaction with the search results and combining the data to reflect the relative importance of the source from which the data originated." Applicants have amended these claims to more clearly distinguish the subject matter of the present invention over the cited references. Simply stated, none of the cited references describes a system in which

data that describes a user's interactions with a search system are collected and normalized. Accordingly, these claims are nonobvious over the cited references for this additional reason.

Claim 59 includes the additional elements of "wherein the instruction to diagnose at least one possible reason why the search result performance compares unfavorably to the expected performance includes an instruction to determine at least one of whether the search result is no longer valid, whether the search result appears in a poor location, whether a search term that generated the search result is easily misspelled." Applicants have amended this claim to more clearly distinguish the claim elements from the cited references. Accordingly, Claim 59 is nonobvious over the cited and applied references for these additional reasons.

Claim 61 adds the additional elements of "wherein the instruction to adjust the operation of the search engine that produced the search result in accordance with the diagnosis, includes an instruction to modify the search engine's search schema to augment a presentation of the search result generated for the search term, wherein to augment the presentation includes at least one of to highlight and animate." Applicants have amended this claim to more clearly distinguish the claim from the cited references. Simply stated, applicants are unable to find any disclosure in the cited references that could map to the remaining claim elements.

Claim 23

The Office Action rejected Claim 23 under 35 U.S.C. § 103(a) as being obvious over Fish in view of Aggarwal and in further view of Szabo. In order to clarify the subject matter that the applicants regard as the invention, certain claim amendments have been made that more clearly distinguish independent Claim 23 from the cited references. As amended, Claim 23 recites:

> 23. An automated search result optimization system implemented in a computer that provides search results to a user, comprising:
>
> an input data representing a performance of a search result generated by a search engine that is executed on the computer for a search term, the input data originating from a plurality of sources;

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a data collection process to collect the input performance data from the plurality of sources wherein the input data collected includes implicit data that describes the user's interactions with the search result;

a diagnostic process to compare a performance of the search result, as represented by the collected performance data, to an expected performance of the search result; and

an adjustment process to generate an output data representing an action to automatically adjust an operation of the search engine whenever the search result performance diverges a quantified threshold from the expected performance, wherein the adjusted operation of the search engine is to improve the performance of the search result; and

wherein the adjustment gives greater significance to performance data from one of the sources based on the implicit data that describes the user's interactions with the search result.

Applicants respectfully submit that neither Fish, Aggarwal, nor Szabo teaches the combination of a data collection process configured to collect "implicit data that describes a user's interactions with the search result" and an adjustment process operative to give "greater significance to performance data from one of the sources based on the implicit data that describes a user's interaction with the search result," as recited in Claim 23. As described previously, the way in which aspects of the present invention identify the most relevant search results is fundamentally different from the cited references. In this regard, Fish is directed to filtering search results based on information obtained from secondary or external sources (e.g., ratings services). The Fish system actually teaches away from the present invention as it employs a secondary source to refine/expand results generated by a conventional search engine. By contrast, aspects of the present invention do not utilize a secondary source to identify relevant search results. Instead, as reflected in Claim 23, aspects of the present invention collect data while providing search services in order to identify how well a search engine is performing in practice. Then an analysis of the actual performance of the search engine is performed so that a cause for underperforming search results may be diagnosed. Based on this analysis, operation of the search engine is adjusted by giving greater significance to performance data from one or

more of the sources that is normalized when determining whether the search result is underperforming. Simply stated, the Fish system utilizes secondary sources to refine and/or adjust the search results provided to a user. In contrast, the present invention identifies how relevant users find the search results being provided in practice and adjust the operation of a search engine accordingly. Since Fish and the other cited references fail to teach each element recited in Claim 23, applicants respectfully request a withdrawal of the 35 U.S.C. § 103 rejection of this claim.

Claims 25-27, 38, 40, and 42-44

Claims 25-27, 38, 40, and 42-44 depend on independent Claim 23. As discussed above, the cited and applied references do not teach a data collection process for collecting implicit data that describes a user's interactions with the search result and an adjustment process operative to give greater significance to performance data that describes users' interactions with the search result. Accordingly, for the above-described reasons, dependent Claims 25-27, 38, 40, and 42-44 are also allowable over the cited and applied references. Additionally, these claims are nonobvious for additional reasons, as discussed in further detail below.

Claim 40 includes the additional elements of "wherein the adjustment process to generate an output data representing an action to automatically adjust an operation of the search engine, includes generating output data that represents an action to increase the search engine's spellchecker tolerance without changing the spelling or creating a variation of the search term." Applicants have amended this claim to more clearly distinguish the subject matter of the present invention over the cited references. In the previous Office Action, the Examiner equated a system that uses spelling variations and word root analysis to broaden search results with the present invention which modifies the tolerance of a spellchecker. Those skilled in the art and others will recognize that modifying a spellchecker tolerance changes when the spellchecker will

identify a word as being misspelled. Simply stated, changing a spellchecker tolerance that determines when a word will be considered misspelled is not equivalent to creating a word variation. In this regard, word variations as taught in Szabo may never be identified as being misspelled, regardless of the current spell checker tolerance. Therefore, changing the spell checker tolerance is not equivalent to creating word variations. Accordingly, these claims are nonobvious over the cited references for this additional reason.

Rejection of Claims 2, 4-22, 28-37, 39, 41, 46, 49-58, 61, and 63 Under 35 U.S.C. § 103(a)

Claims 2, 4-22, 28-37, 39, 41, 46, 49-58, 61, and 63 were rejected under 35 U.S.C. § 103(a) as being obvious over Fish in view of Aggarwal in view of Szabo, and in further view of Reisman. The Office Action asserts that the cited and applied references teach each element of these claims. However, as discussed above, the cited and applied references fail to teach or suggest teach a data collection process for collecting implicit data that describes users' interactions with the search result and an adjustment process operative to give greater significance to performance data that describes users' interactions with the search result among other claim elements. Accordingly, for the above-described reasons, dependent Claims 2, 4-22, 28-37, 41, 46, 50-58, 61, and 63 are also allowable for the same reasons as independent Claims 1, 23, and 45, respectively.

CONCLUSION

In view of the remarks above, applicants respectfully submit that the present application is in condition for allowance. Reconsideration and reexamination of the application and allowance of the claims at an early date are solicited. If the Examiner has any questions or comments concerning this matter, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,

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